Name of work; Comprehensive development of roads and drains at Aditya nagara, Chikkabettahalli, jyothinagara, munishamappa layout and Judicial layout in ward no 03 & 04 of yelahanka division (Package No- 05)

Name of the Agency:- Sri G. Chandrashekar Sri Sai Charan Constructions

Bill No:- 1st and Part Bill

Work Order No:- BBMP/EE/YNK/E-PMT-06/W.O/ 232 /2020-21

Agreement No:- BBMP/EE/YNK/E-PMT-NO -06/AG/ /2020-21

Head of Account :

Tender approved Amount : Rs. 7,38,39,091/-

Job Code:- 003-21-000043

CERTIFICATE

BOQ Sl No	Description of the Item	Comments/Observation
1	**Dismantling of existing structures** like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i) Lime /Cement Concrete. I. By Manual Means :B. Cement Concrete Grade M-15 & M-20. complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
2	**Removing and refixing** stone slabs of drains and pointing in CM (1:3) complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
3	**Removing and refixing of kerb stones** complete with all lead and lift as per the direction of engineer-in-charge	Work and quantity is satisfactory done up to the billed quantity

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BOQ Sl No	Description of the Item	Comments/Observation
4	Providing and laying heavy duty **cobble stones** 60mm thick interlock pavers, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per sqm over 50mm thick sand bed (average thickness) and compacting with plate vibrator having 3 tons compaction force thereby forcing part of sand underneath to come up in between joints, final compaction of paver surface joints into its final level, including cost of materials, labour and HOM of machineries complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
5	**Earthwork excavation** by manual means in ordinary soil invoiving in average horizontal throw up to 2m & an average lift upto 1.5m , excavated surface leveled & sides neatly dressed , the disposed earth to be levelled neatly after breaking of clods complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
6	Providing and Filling in foundation with **granite / trap broken metal 100mm**. and down size & with approved sand including hand packing, ramming, watering, including cost of all materials and labour complete with all lead and lift as per the direction of engineer-in-charge	Work to be executed
7	Providing Nominal **40mm** size stone aggrigates complete with all lead and lift as per the direction of engineer-in-charge	Work to be executed
8	Providing Nominal **20mm** size stone aggrigates complete with all lead and lift as per the direction of engineer-in-charge	Work to be executed

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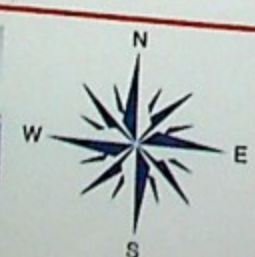

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BOQ SL.NO.	Description of the Item	Comments/Observation
9	Providing And fixing **ms grill work** for windows and ventilators using ms flats or ms square rods or combination of ms flats and square rods as per approved design drawing including cutting steel sections and welding the same to required pattern with a coat of red lead primer cost of materials fixtures, labours, complete with all lead and lift as per the direction of engineer-in-charge	Work to be executed
10	**Plain cement concrete 1:3:6** mix with crushed stone aggregate 40 m nominal size mechanically mixed, placed in foundation and compacted by vibration including curing complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
11	Providing and laying plain/reinforced cement concrete for side drains using **M20** nominal mix concrete with OPC at 300 kgs. with 20mm and down size granite metal coarse aggregates at 0.69 cum and fine aggregates at 0.43 cum machine mixed, well compacted for walls and bottom including centering, shuttering, cost of materials, HOM of machinery, curing etc., complete excluding cost of steel as per MORTH specification No. 1500, 1700, 2200. including cost of materials, labour, HOM complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
12	Providing **T.M.T.** steel reinforcement for R.C.C. work including straightening, cutting, bending, hooking, placing in position, lapping and/or welding wherever required, tying with binding wire and anchoring to the adjoining members wherever necessary complete as per disign (laps, hooks and wastage shall not be measured and paid) cost of materials, labour, HOM complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory

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BOQ SL.NO.	Description of the Item	Comments/Observation
13	Providing & laying **precast drain cover slab of 100 mm** thickness in CM 1:3 including cost of all materials, labour, curing, transportation, loading, unloading etc, complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
14	Providing & laying **precast drain cover slab of 150 mm** thickness in CM 1:3 including cost of all materials, labour, curing, transportation, loading, unloading etc, complete as per the directions of the Engineer In Charge.(2.0 x 0.60 x 0.15)Data rate	Work done up to the billed quantity and quantity is satisfactory
15	Providing & laying **precast drain cover slab of 250 mm** thickness in CM 1:3 including cost of all materials, labour, curing, transportation, loading, unloading etc, complete as per the directions of the Engineer In Charge.(1.2 x 0.60 x 0.25)Data rate	Work to be executed
16	Providing and fixing pre cast solid concrete **kerb stones** of size 450x150x400 mm made out of CC 1:2:4 and finished with CM 1:3 plastering and finishing cutting ete., complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
17	Painting **two coats** after filling the surface with synthetic enamel paint in approved shades on new plastered concrete surfaces, with materials, labour complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
18	**Excavation for roadwork** in all types of soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location to a lead of 1.00 km and complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory

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BOQ SL.NO.	Description of the Item	Comments/Observation
19	**Compaction of original ground** with maximum of 6 passes of 8 to 10 tonnes power roller including filling in depression occuring during rolling including cost of all labour, complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
20	Construction of **granular sub-base** Grading-V as sub-base and drainage layer by providing coarse graded crushed stone aggregates of granite/trap/basalt material, mixing in a mechanical mix plant at OMC, carriage of mixed material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the 98% proctor density, complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
21	Providing, laying, spreading and compacting crushed stone aggregates of granite / trap / basalt to **wet mix macadam** specifications including pre mixing the material with water at OMC in mechanical mix plant carriage of mixed method of tipper to site, laying in uniform layers with paver in sub-base/base course on well prepared surface and compacting with vibratory roller to achieve the desired density complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
22	Providing and applying **primer coat** with S.S. bitumen emulsion on prepared surface of granular base such as WMM ,including clearing of road surface and spraying primer at the rate of 0.60 kg / sqm using mechanical means complete as per Specifications. MORTH Specification No. 502 Complete with all lead and lift and as per the direction of the Engineer-in-Charge.	Work done up to the billed quantity and quantity is satisfactory
23	Providing and laying **dense graded bituminous macadam** using crushed aggregates of specified grading, premixed with VG30 grade bituminous binder and, transporting the hot mix to work site, laying to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH table 500-10 complete in all respects complete as per specifications. Clause 505 of morth V revision using 40/60 TPH capacity H.M.P. with mechanical paver Gr-II (50mm to 75mm) with 4.5% VG-30 Bitumen.complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory

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BOQ SL.NO.	Description of the Item	Comments/Observation
24	**Cleaning the existing black** topped surface with brooms, soft brushes and finally dusting with old gunny bags and / or compressed air to receive bituminous treatment including cost of all materials, labour, HOM of machineries complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
25	Providing and applying **tack coat** using 80/100 grade bitumen(VG10) on the prepared black topped surfaces at 2.5 kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
26	Providing and laying **bituminous concrete** using crushed aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site, laying with a paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction in all respects complete as per specifications. Clause 507 of MORTH V revision. -using40/60 TPH capacity H.M.P. with Mechanical Paver Gr-II (30 mm to 40 mm) with 5.4% VG-30 Bitumen complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
27	**Road Marking** with Hot Applied Thermoplastic Compound with Reflectrising Glass Beads on Bituminous Surface:- Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory

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BOQ SL.NO.	Description of the Item	Comments/Observation
28	Providing and fixing of **road stud** 100x 100 mm, diecast in aluminium, resistant to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling hole 30 mm upto a depth of 60 mm and bedded in a suitable bituminous grout or epoxy mortar, complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
29	Construction of **dry lean cement concrete** mix CC1:5:10 with OPC cement @160Kgs, with 25mm and down size graded granite metal coarse aggregate at 0.86cum and fine aggregates @ 0.58cum Sub- base over a prepared sub-grade with (coarse and fine aggregate conforming to IS: 383) aggregate cement ratio not to exceed 15:1. Aggregate gradation after blending to be as per Table 600-1, cement content not to be less than 160 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with a paver with electronic sensor, compacting with 8-10 tonnes vibratory roller, finishing and curing complete as per specifications. MORTH Specification No. 601 with OPC cement @150Kgs, with 25mm and down size graded granite metal coarse aggregate at 0.86cum and fine aggregates @ 0.58cum using Concrete Batch mix Plant at 75 cum/hr capacity with slip form paver with electronic sensor .complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory
30	constructing un-reinforced, plain cement Pavements using Grade **M-30** over a prepared base with OPC 360 kg/cum coarse aggregate at 0.69cum, fine aggregates at 0.46cum, Coarse and fine aggregate confirming to IS:383-2016 with Superplastizer at 3lts conforming to IS 9103-2008. mixed in a concrete mixer of not less than 0.6 cum capacity and appropriate weigh batcher as per approved mix design, laid in approved fixed side form work (steel channel, laying and fixing of 125 micronthick polythene film, wedges, steel plates including levelling the form work as per drawing). & Spreading the concrete with shovels, rackers compacted using needle, screed and plate vibrator and finished with floaters in a continous operation including provision of contraction, expansion, construction and longitudinal joints, including groove cutting charges, joint filler, separation membrane of impermiable plastic sheet of 125 micron, sealant primer, joint sealant, admixtures as approved, curing compound, finishing to lines and grades, textured with texturing machine, and curing including cost of all materials, labour, hire charges of machineries, all lead & lift charges etc., complete with all lead and lift as per the direction of engineer-in-charge	Work done up to the billed quantity and quantity is satisfactory

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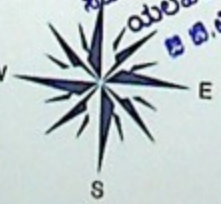

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